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CLAIMS

What is claimed is:

1. A method of comparing a first image and a second image comprising the steps of:

5   (a) compressing the first image into a first image projection;

(b) compressing the second image into a second image projection;

(c) determining a deviation of symmetry of the first image projection and the second image projection by the steps of:

(i) locating a correlation peak Δ;

10   (ii) performing a correlation function at a first point near the correlation peak $\Delta + \delta$ to determine a first correlation result;

(iii) performing the correlation function at a second point near the correlation peak $\Delta - \delta$ to determine a second correlation result;

(iv) performing the correlation function at the correlation peak Δ to determine a peak correlation result;

15   (v) computing a difference between the first correlation result and the second correlation result;

(vi) dividing the difference by the peak correlation result to determine the deviation of symmetry; and

20   (d) comparing the deviation of symmetry and a predetermined threshold value.

2. The method of claim 1 wherein the step of comparing the deviation of symmetry and a predetermined threshold value determines whether the first image and the second image are the images of a same object.

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3.   The method of claim 1 wherein the first image is a predetermined reference image and the second image is an acquired image.

4.   The method of claim 1 wherein the first and second images are images of a biometric object selected from a group consisting of fingerprints, hand or palm prints, and faces.

5.   The method of claim 1 wherein the first image projection and the second image projection are in one dimensional format.

6.   The method of claim 1 wherein the step of compressing a first image includes summing pixels of the first image to produce a first image projection.

7.   The method of claim 1 wherein the first image projection includes x projection.

8.   The method of claim 1 further comprising subtracting a background average constant from the correlation function to reduce background noise in the first and second projections.

9.   The method of claim 1 wherein the correlation function includes a displacement parameter to align the first and second images.

10.   The method of claim 1 wherein the first projection includes image data sensitive near the correlation peak.

11.   A method of authenticating an acquired image of an object comprising the steps of:

        compressing the acquired image into an acquired image projection;

performing a symmetry process between the acquired image projection and a reference projection of a predetermined reference image to determine a deviation of symmetry; and

authenticating the acquired image by comparing the deviation of

5   symmetry and a predetermined threshold value.

12.   The method of claim 11 wherein the symmetry process comprising the steps of:

providing a correlation function;

locating a correlation peak;

10   folding the correlation function at about the correlation peak to determine a symmetry of the acquired and reference projections; and

normalizing the symmetry to determine the deviation of symmetry.

13.   The method of claim 12 wherein folding the correlation function comprises performing the correlation function near the correlation peak to determine a first

15   correlation result and a second correlation result, and computing the difference between the first and second correlation results.

14.   The method of claim 13 wherein normalizing the symmetry comprises performing the correlation function at the correlation peak, and dividing the

20   difference by the peak correlation result to determine the deviation of symmetry.

15.   The method of claim 11 further comprising acquiring the acquired image to be authenticated.

16.   The method of claim 11 further comprising storing the predetermined reference image.

17.   The method of claim 11 wherein the object includes fingerprints, hand or palm prints, retina scans, signatures and faces.

18.   The method of claim 11 wherein the acquired image projection includes image data sensitive at about a correlation peak.

5   19.   A method of image correlation comprising the steps of:

compressing a first image of a first object into a first projection;

compressing a second image of a second object into a second projection;

comparing the symmetry between the first and second projections to determine a deviation of symmetry; and

10   comparing the deviation of symmetry and a predetermined threshold value to determine whether the first image and the second image are the images of a same object.

20.   Apparatus for image recognition of an object comprising:

a processor which first compresses a first image of a first object into a first projection and compresses a second image of a second object into a second

15   projection; and

a comparator which then compares the symmetry between the first and second projections to determine a deviation of symmetry and compares the deviation of symmetry and a predetermined threshold value to determine

20   whether the first image and the second image are the images of a same object.